LESSON STUDY PROJECT

Lesson study is a professional development process that requires teachers to systematically examine their practice, with the goal of becoming more effective. This process calls for teachers to collaborate on lessons they will teach. Working on these study lessons involves planning, teaching, observing, and critiquing the lessons. The teachers decide on a goal and research question to guide their exploration for the year. Lesson study focuses on student observation. It is not about the teacher, but about how the student is learning the material. Lessons usually focus on objectives that are difficult to teach or difficult to learn. Teachers focus on common misconceptions among their students. Lesson study is onsite professional development. It requires teachers to open their doors and welcome colleagues to come in and observe student understanding.

Lesson Study is a common professional development practice in Japan. It received more attention after the release of the Third International Mathematics and Science Study (TIMMS). This report showed U.S. students lagging behind Japanese students. These videos were released and showed that Japanese classrooms were very similar to the recommendations of the National Counsel of Teachers of Mathematics (NCTM). Japanese classrooms were viewed as more student- centered rather than teacher-directed.

According to Catherine Lewis, lesson study is not just about improving a single lesson. It’s about building pathways for ongoing improvement of instruction (Educational Leadership February 2004). The process allows the team of teachers to improve in seven key pathways: increased knowledge of subject matter, increased knowledge of instruction, increased ability to observe students, stronger collegial networks, stronger connection of daily practice to long term goals, stronger motivation and sense of efficacy, and improved quality of available lesson plans.

Lesson study begins with examining the standards and digging deeper into the textbooks. It uses the PLC (Professional Learning Community) model developed my Robert DuFour in his book, Professional Learning Communities at Work: Best practice for Enhancing Student Achievement, to answer four very important questions. What do we expect our students to learn? How will we know when they are learning? How will we respond when they don’t learn? How will we respond if they already know it?

In lesson study, it is the observation of the student that is most important. Observers go into the classroom and take notes on the student’s thinking and understanding of the lesson. This puts the focus on the student rather than the pedagogy of the teachers. The lesson is put together by a team of teachers and scripted for exact delivery. This allows the group to factor out the impact of who the teacher is, and focus on the learning of the students.

This type of professional development allows teachers to form a stronger bond of teamwork in their school. They come to realize that the students belong to all of us. It is an entire system that changes student thinking. It is not just the experience that students get from one year in Mrs. Brown’s room. This teamwork philosophy provides community building among the staff. The habits of mind and heart fundamental to success in school; including persistence, cooperation, responsibility, and willingness to work hard develop over many years and in many classrooms (Lewis, 1995). Students need a consistent value system from one grade to the next in order to optimize learning.

James W. Stigler and James Hiebert are two of the leading authors in this area. Stigler and Hiebert, authors of The Teaching Gap, focus on the art and science of teaching to improve student learning. They look at professional development under a completely different lens. Improving classroom teaching requires change agents to look carefully at the difficult job of teaching through the lens of student understanding. In other words, effective change needs to focus on the teaching not the teacher. Stigler and Hiebert advocate that the teaching profession must be redefined to give teachers both the responsibility and the resources to study and improve teaching. Teachers must continuously learn from and contribute to a growing knowledge base for teaching. Teaching is not an inborn trait, but a complex skill that can be studied and learned over time.

Why is it important to improve teaching? The truth of the matter is that American students are being shortchanged. They could be learning at a much deeper level than they are learning now. In The Learning Gap, Stigler releases startling statistics about the current situation in American schools. He looked at student achievement in Japan, Taiwan, China, and the United States. The findings were alarming to say the least. By fifth grade the highest scoring United States Math students did not perform as well as the lowest scoring Japanese Math students. This was reinforced by the TIMMS data. This data offered something unique and intriguing to researchers. It was done in the form of video. This video study allowed Stigler and Hiebert to focus on the “teaching” and the “student learning.“ As a result of their research, the practice of lesson study for professional development was born. This idea of professional development is site-based, long-term, grounded in teachers’ practice, and an ongoing part of teachers’ workweek, rather than something that is tacked on. Other authors such as Lou-Ellen Finn, Thomas R. Guskey, and Regie Routman also write about engaging teachers in the reflection of their practice and building a community of learners. **(*Human Resources*; philosophy and purpose of staff development programs/ *Curriculum and Instruction*; standards, planning and development, implementation, continuous assessment/ *Administration of Curriculum and Instruction*; curriculum development including high academic standards, best practice, curriculum evaluation and student assessment, professional development, facilitating change necessary for instructional improvement/ *Research*; role of research in education, action research, evaluating research, program evaluation in school and district, applying research to practice, designing and implementing research projects/ *Advanced Program Planning*; understanding of curriculum as a K-12 whole within various subject strands, making curriculum decisions, evaluation of curriculum material and curriculum as a whole/ *Implementing Standards-based Education*; historical background of standards-based education, setting standards for accountability, grade level considerations in writing standards, assessment of students relative to standards, in-servicing teachers for standards based instruction, the standards based classroom.)**

I have been part of a lesson study group at the CESA level for the past three years. I decided to take a leadership role and facilitate a lesson study group in my own school district. I have been teaching Math in our district for the past 26 years. I have been through all of the pendulum swings. I was at the heart of every discussion revolving around the math wars. The School District of Flambeau adopted a new series in Math eight years ago. This research based, innovative program focuses on student thinking rather than rote computation. Kids are taught how to make sense of the math. The students have made great gains in understanding the math. They are more confidant, capable, and curious about the math around them. Our elementary state test scores have improved over the course of these years. In 2007-2008 39.8% of our students scored proficient and advanced on the state test. In 2011-2012 52.3% of our students score at the same level. However, our students are still struggling with fact fluency for addition, subtraction, multiplication, and division. The teachers at the middle school level are frustrated with this curriculum weakness. This lack of fluency gets in the way of complex problems involving fraction, decimals, and embedded problem solving.

My project started in the fall with writing a proposal for setting up a lesson study team at Flambeau. It included a rationale, list of potential participants, list of resources, schedule for 2012-2013, and a budget. Lesson Study is a great way for districts to get professional development onsite. Onsite professional development saves money. Teachers learn, reflect, and grow in the context of their professional learning community. This saves the district travel expenses, workshop registration fees, and valuable time away from their students. It just makes sense to focus your professional development around the unique attributes and needs of your school. **(*Finance*; role of district data in driving financial decisions, budget options: site based, centralized, programmatic, and categorical.)**

The School District of Flambeau is studying best practices for teaching of fact fluency to our students. I am leading this group of teachers interested in improving math instruction in the area of fact understanding and fluency. I have eleven teachers in this group. The group is comprised of a classroom teacher at each grade level, 2 special education teachers, and the library media specialist. I have scheduled half-day meetings with this group of volunteer teachers once per month. I am facilitating the research, discussion, planning, and reflection in the area of number concepts. I am working with a Math coach and a Math Specialist through CESA 10. I am responsible for developing an agenda, ordering materials, and scheduling meeting rooms and opportunities for observation. Our study group is assessing and probing students throughout this process.

I met with my lesson study group one half day each month. We started building from the PLC model of essential questions to guide our learning. After several conversations and research article discussions we decided to study how children learn their facts. We found there is a lot of conflicting information about how students learn their facts and how teachers perceive what being fluent really means. We came to the consensus that computational fluency is the efficient, appropriate, and flexible application of single-digit and multi-digit calculation skills.

Now, how do we get them there? Our first task was to analyze the Common Core Standards at each grade level. Then we looked at our current curriculum materials to see if they really matched what was expected in the standards. We found that our materials were research based and embedded with Common Core Standards most of the time. However, we did find some gaps and wholes when we dug deeper into the materials.

There were some important strategies missing in order for the students to become *flexible* and *efficient* with learning the facts. Some key visual representations were needed in order to get the students to subitize numbers. This idea of subitizing numbers allows students to see 5 all at one time rather than 1,2,3,4,5 individual dots. Dot cards, dice, and ten frames help the children to subitize numbers. Our research led us to some innovative materials about fact fluency put out by Origo. The research of Greg Tang was also used in this process.

Origo is an intervention kits for teaching or re-teaching the facts. One of the components of the Origo materials was the routine of playing games to reinforce strategies and fluency. We discovered that this motivation piece was missing in our current math curriculum. We first piloted our materials in second, third and fourth grade. In the second grade classroom we looked at adding and subtracting. In the third and fourth grade classrooms we investigated multiplication. Then we added dot cards and ten frames in kindergarten, first and second grade.

We taught lessons with these Origo materials during math class and intervention times. I scheduled teachers to observe in classrooms when the lesson was going on. We got back together and discussed the student learning that took place. Then we reflected on our practice and made it better. We looked deeper at our questions, the scaffolding of the problems, the scaffolding of student learning, and the student responses that were gathered. Then we redesigned the lesson and taught it again. **(*Coordination of Special School Programs*; purpose of special school program, relationship of special school program and regular education program, organizational structure of special school program, planning for special school program, curriculum development, evaluation of program.)**

This process was our vehicle for building community among our staff. It was so exciting to hear the discussions in the teacher workroom change as a result of this process. Teachers were talking about their students in a positive way. They were discussing student learning, teaching techniques, ah-has in their classroom, and the excitement around lesson study was building. We started having meaningful discussions and this collaboration is essential for making a positive change in our school.

My lesson study group was hungry for more information. We decided to join a book study called Number Talks that was offered through CESA 10. We even attracted two teachers that were not involved in lesson study to join this book study. These teachers became interested in what we were doing and wanted to join in on the learning. Number Talks, written by Sherry Parish, was a game changer for all that were involved. This book shows teachers how to get their students to do math mentally. The teacher records the student’s thinking in a structured way so that all of the student can learn from one another. This strategy reinforced our knowledge that all students can learn at high levels as long as we allow students to apply their own natural math abilities to the task at hand. Sometimes we need to put the math in context in order for the students to be able to solve the problem.

The next thing that I provided was an additional book study for the group. We were curious about more than mathematics in our learning community. I led a book study on Classroom Strategies that Work by Dean, Hubbell, Pitler, and Stone (2012). This books looks at the 10 best practices to improve student learning in your classroom. We are meeting afterschool to discuss these research-based practices. These authors promote the following best practices: recognizing similarities and differences, note taking and summarizing, assigning homework and providing practice, using cues and questioning, nonlinguistic representation, generating and testing hypotheses, setting objectives and providing feedback, reinforcing effort and providing recognition, and cooperative learning. Professional discussions around these topics are part of the fabric of our school because of this book study. **(*Leadership*; leadership style, developing and focusing a vision for the organization, context for leadership, public school history and philosophy, long range strategic planning, functioning with integrity, fairness and ethical standards, effective use of communication, developing a school climate of acceptance of diversity, developing and maintaining a safe, efficient, and effective learning environment/ *Decision Making*; decision making process, roles of power in decision making, processes of participative decision-making including consensus, motivational theories and processes, program review and evaluation, problem solving in decision-making, role of fairness and ethics, change process and its impact on decision-making, managing conflict in the professional work environment/ *Learner Centered Instructional Leadership*; school culture and climate, curriculum development, supervision and evaluation of instruction, interpreting and using test data for school improvement, working with the beginning teacher and staff development, applying knowledge of the standards, recognizing and celebrating accomplishments, effectively communicating the vision, long range strategic planning.)**

Future Implications:

Lesson study has impacted every facet the Flambeau School District. The shift in thinking that it has fueled is positively contagious. It has changed the way we teach, the way we think about our students, they way we talk with our colleagues, and the knowledge we have about Mathematics. It has motivated us to learn as much as possible about student learning and quality programs that are available. It allowed us to look at the bigger picture. We are interested in long-term development. What kind of people do we hope our students will become? How can we get all of our students to learn at high levels? This process forces us to really analyze our mission in school. The next step for Flambeau would be to write a new mission statement. Our current mission statement is too wordy and out of date.

Next year we will have PLC time built into our schedule. We are ready to implement our action plan for RTI for the 2013-2014 school years. Lesson study is a perfect example of collaboration and change for both of these initiatives. Lesson study works and this model is the framework for future work at School District of Flambeau.

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